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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/562,131

12/23/2005

Takashi Kakiuchi

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10/24/2008

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EXAMINER

MYERS, JESSICA L

ART UNIT

PAPER NUMBER

3746

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DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/562,131	<b>Applicant(s)</b> KAKIUCHI ET AL.	
	<b>Examiner</b> JESSICA L. MYERS	<b>Art Unit</b> 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 7/11/2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12/23/2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Response to Amendment*

1. The amendment and arguments filed on 7/11/08 under 37 CFR 1.131 have been entered and considered.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 3,848,702 to Bergman (Bergman).

#### In Reference to Claim 1

Bergman teaches a hermetically sealed compressor (see figure 1) comprising:

a sealed vessel (casing halves (22 and 24) are sealed together) filled with a coolant and a freezer oil (the compressor is used for refrigeration, and therefor would compress a coolant, and lubricating oil is stored in a main reservoir (82) in the bottom of the compressor);

an electromotive element including a rotor and a stator ((30 and 32), not discussed in the specification but shown in figure 1), the electromotive element accommodated within the sealed vessel;

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a compressing element (compressor (16)) accommodated within an upper region of the sealed vessel and adapted to be driven by the electromotive element (the compressor is driven by the rotor and stator), the compressing element being provided with a shaft (tubular, shaft-like wall (70)), arranged so as to extend vertically and having the rotor mounted thereon (the rotor, and the rotor's shaft (14), which is attached to the rotor via component (34), are mounted on the shaft (70)), and a bearing for supporting the shaft (bearing (86) supports the shaft (14) which supports the shaft (70));

a first oil pump provided in a lower portion of the shaft and opening into the freezer oil (the base of the shafts (14 and 70) serve as a first pump that is open to the oil sump (87));

a second oil pump provided above the first oil pump and formed by a spiral groove, provided on an outer periphery of the shaft (there is a spiral groove formed between the ribs (72) of the outer periphery of shaft (70)), and an inner peripheral wall surface of the rotor (these grooves are closed by the tube (14) that is carried on the rotor); and

a third oil pump provided above the second oil pump and formed by a spiral groove (including grooves (92, 94 and 96)), provided on the outer periphery of the shaft (the grooves are provided on the outside of shaft (14) which is carried on the outside of shaft (70)), and an inner peripheral surface of the bearing (these grooves are closed by the bearing (86)).

In Reference to Claim 2

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Bergman teaches the hermetically sealed compressor as claimed in claim 1 (see the rejection of claim 1 above), wherein the spiral groove of the second oil pump and the spiral groove of the third oil pump are formed continuously (the spiral grooves of the first and second pumps are continuous in the sense that they are connected by oil holes (88 and 90)).

#### In Reference to Claim 3

Bergman teaches the hermetically sealed compressor as claimed in claim 2 (see the rejection of claim 2 above), wherein the spiral groove of the second oil pump and the spiral groove of the third oil pump open in communication with a first gap formed between the rotor and the bearing (The spiral grooves of the first and second oil pumps are partially in communication via groove (92), which is formed as a gap between the bearing (86) and the tube (14) that is carried on the rotor).

#### In Reference to Claim 5

Bergman teaches the hermetically sealed compressor as claimed in claim 2 (see the rejection of claim 2 above), wherein the rotor has an upper end face formed with a bore for receiving the bearing (the upper end of the rotor has a hollow central section that receives the casting (18) and the bearing (86)) and a second gap is formed between an inner peripheral surface of the bore and an outer peripheral surface of the bearing (as can be seen in figure 1).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bergman.

In Reference to Claim 4

Bergman teaches the hermetically sealed compressor as claimed in claim 3 (see the rejection of claim 3 above), but does not teach the size of the first gap.

However, the size of the first gap is considered to be an obvious design choice that one of ordinary skill in the art would have known how to optimize in view of the specific technical requirements of the hermetically sealed compressor design. Further, to the extent that the claimed invention produces the claimed desired results, the applied prior art structure being the same, does the same. In addition, it has been held that "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454,456, 105 USPQ 233, 235 (CCPA 1955), MPEP 2144.05 II.

In Reference to Claim 6

Bergman teaches the hermetically sealed compressor as claimed in claim 5 (see the rejection of claim 5 above), but does not teach the size of the second gap.

However, the size of the second gap is considered to be an obvious design choice that one of ordinary skill in the art would have known how to optimize in view of the specific technical requirements of the hermetically sealed compressor design. Further, to the extent that the claimed invention produces the claimed desired results, the applied prior art structure being the same, does the same. In addition, it has been held that "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454,456, 105 USPQ 233, 235 (CCPA 1955), MPEP 2144.05 II.

In Reference to Claim 7

Bergman teaches the hermetically sealed compressor as claimed in claim 5 (see the rejection of claim 5 above), but does not teach the specific depth of the bore.

However, the size of the bore is considered to be an obvious design choice that one of ordinary skill in the art would have known how to optimize in view of the specific technical requirements of the hermetically sealed compressor design. Further, to the extent that the claimed invention produces the claimed desired results, the applied prior art structure being the same, does the same. In addition, it has been held that "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454,456, 105 USPQ 233, 235 (CCPA 1955), MPEP 2144.05 II.

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bergman in view of U.S. Patent 2,526,443 to Woodson (Woodson).

Bergman teaches the hermetically sealed compressor as claimed in claim 3 (see the rejection of claim 3 above), but does not teach an axially elastically deformable washer interposed in the first gap.

Woodson teaches a similar pump apparatus, where a rubber sealing ring (18) is placed between the pump shaft (8) and the pump housing (15) below the main pump (20) in order to prevent the pumped liquid from running down the shaft (see column 2 lines 1-14 and lines 47-52). It would have been obvious to one of ordinary skill in the art at the time of invention to include a sealing ring as taught by Woodson in the first gap of Bergman in order to prevent any pumped fluid from leaking down the shaft into the oil sump.

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bergman in view of U.S. Patent 5,340,287 to Kawahara et al. (Kawahara et al.).

Bergman teaches the hermetically sealed compressor as claimed in claim 3 (see the rejection of claim 3 above), but does not teach that the rotor has a center of magnetism displaced below a center of magnetism of the stator or that the first gap becomes almost zero over the entire circumference thereof when the rotor ascends by a magnetic force of attraction during operation.

Kawahara teaches of a scroll-type compressor comprising of an electric motor in which the magnetic centers of the rotor and stator are offset from one another. Kawahara teaches that when the electric motor is arranged such that the magnetic centers of the rotor and stator are offset from each other, a magnetic attracting force



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acts as an axial pre-load on the inner race of the upper bearing in addition to the weight of the crankshaft and associated parts (see column 7, lines 5-11). It is interpreted that the load is generated by the rotor being displaced into alignment with the center of magnetism of the stator due to the magnetic force there between. Therefore it would be obvious to one of ordinary skill in the art at the time of the invention to offset the center of magnetism of the rotor from that of the stator of Bergman in order to achieve a magnetic attraction there between allowing for the rotor to be displaced by a particular distance to overcome the offset of their magnetic centers. Furthermore, it would be obvious to offset the rotor's center of magnetism a particular distance below the center of magnetism of the stator to achieve an upward displacement of the rotor by a desired distance. In order to allow the rotor to shift in this manner, the position of the first gap of Bergman would need to be shifted, but this type of minor modification would be within the skill of one familiar with the art.

8. Claims 10, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bergman in view of U.S. Patent 6,547,538 to Tamura et al. (Tamura et al.).

In Reference to Claim 10

Bergman teaches a hermetically sealed compressor comprising:

a sealed vessel (casing halves (22 and 24) are sealed together) filled with a lubricant oil (the compressor is used for refrigeration, and therefor would compress a

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coolant, and lubricating oil is stored in a main reservoir (82) in the bottom of the compressor);

an electromotive element including a rotor and a stator ((30 and 32), not discussed in the specification but shown in figure 1), the electromotive element being accommodated within the sealed vessel;

a compressing element (compressor (16)) accommodated within the sealed vessel and adapted to be driven by the electromotive element (the compressor is driven by the rotor and stator), the compressing element being provided with a shaft (tubular, shaft-like wall (70)), having an eccentric shaft portion (eccentric (36) attached to the top of the shaft) and a main shaft portion (including shaft (70)), and a main bearing for supporting the main shaft portion (bearing (86) supports the shaft (14) which supports the shaft (70));

a first oil pump provided in a lower portion of the shaft and opening into the lubricant oil (the base of the shafts (14 and 70) serve as a first pump that is open to the oil sump (87));

a second oil pump provided above the first oil pump and formed by a spiral groove, provided on an outer periphery of the shaft (there is a spiral groove formed between the ribs (72) of the outer periphery of shaft (70)), and an inner peripheral wall surface of the rotor (these grooves are closed by the tube (14) that is carried on the rotor); and

a third oil pump provided above the second oil pump and formed by a spiral groove (including grooves (92, 94 and 96)), provided on the outer periphery of the shaft

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(the grooves are provided on the outside of shaft (14) which is carried on the outside of shaft (70)), and an inner peripheral surface of the main bearing (these grooves are closed by the bearing (86));

Bergman fails to teach that the electromotive element is a bipolar permanent magnet electric motor including a permanent magnet built in a rotor iron core of the rotor.

Tamura et al. teach a motor (53) comprising a rotor (55) wherein permanent magnets (70a) and (70b) are built in the core (68). Tamura et al. teach further that permanent magnets comprise of both north (N) and south (S) poles ultimately allowing for a bipolar permanent magnet electric motor (see column 4 line 66 - column 5 line 10 and Fig. 2). Therefore it would be obvious at the time of the invention to utilize a bipolar permanent magnet electric motor including a rotor with built in permanent magnets due to the fact that is a well-known type of motor that would be known to one of ordinary skill in the art. As to the rotor having an iron core, it is notoriously known in the art for the core to be constructed from a material as such. Furthermore, Tamura teaches of motor in which the rotor comprises of an iron core (see column 1, lines 34 - 37).

#### In Reference to Claim 13

Bergman as modified by Tamura et al. teaches the hermetically sealed compressor of claim 10 (see the rejection of claim 10 above), including a self starting synchronous motor (53) in which conductor bars (71) are provided on the periphery of the rotor (55) of a starter cage conductor on the outer periphery of the rotor core and also including a plurality of permanent magnets (70a) and (70b) embedded within the

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rotor core (see column 4 lines 33 - 38, column 5 lines 23 - 36 and Fig. 2). As to the rotor having an iron core, it is notoriously known in the art for the core to be constructed from a material as such.

In Reference to Claim 14

Bergman as modified by Tamura et al. teaches the hermetically sealed compressor as claimed in claim 10 (see the rejection of claim 10 above), and that the permanent magnets (70a) and (70b) are rare earth magnets (see column 4, line 66 - column 5, line 3). It would have been obvious to one of ordinary skill at the time of the invention to utilize magnets as such since they are already known in the art.

Furthermore, it would be obvious for one of ordinary skill in the art to select a permanent magnet from a finite number of resources whether it is a permanent magnet that occurs naturally or one which is manufactured. A person of ordinary skill has good reason to pursue the known options of permanent magnets within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense.

9. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bergman in view of Tamura et al. as applied to claim 10 above, and further in view of U.S. Patent 5,266,016 to Kandpal (Kandpal).

In Reference to Claim 11

Bergman as modified by Tamura et al. teaches the hermetically sealed compressor as claimed in claim 10 (see the rejection of claim 10 above), but does not

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teach that the main bearing does not intersect a plane containing one end of the rotor iron core adjacent the compressing element and lying generally perpendicular to a longitudinal axis of the main shaft.

Kandpal teaches a hermetically sealed compressor wherein it may be visually observed in Fig. 1 that the element (60), analogous to the main bearing as designated by the applicant, is arranged in a comparable manner in which it (60) does not intersect a plane containing one end of the rotor core (30) adjacent the compressing element (20) and lying generally perpendicular to a longitudinal axis of the main shaft (see Fig. 1). It would have been obvious to one of ordinary skill in the art at the time of invention to arrange the rotor and bearing of Bergman as modified by Tamura et al. in the manner taught by Kandpal in order to avoid any wear and tear on the rotor caused by it coming into contact with the bearing.

#### In Reference to Claim 12

Bergman as modified by Tamura et al. teaches the hermetically sealed compressor as claimed in claim 10 (see the rejection of claim 10 above), but does not teach an auxiliary shaft portion provided coaxially of the main shaft portion with the eccentric shaft portion intervening between it and the main shaft portion, and an auxiliary bearing for supporting the auxiliary shaft portion.

Kandpal teaches a compressor in which an auxiliary shaft portion (26) is provided coaxially of the main shaft portion (labeled by the examiner) with the eccentric shaft portion (42) intervening between the main shaft portion and the auxiliary shaft portion (26), and an auxiliary bearing (62) for supporting the auxiliary shaft portion (26) (see

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Fig. 1). It would have been obvious to one of ordinary skill in the art at the time of invention to use the compressor arrangement of Kandpal instead of the compressor as taught by Bergman, since the compressor of Kandpal is well known in the art as an alternative to the compressor of Bergman, and since the combining of the two would yield predictable results.

### ***Response to Arguments***

10. Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 5,951,262 to Hartman teaches a pump with a spiral groove formed between a pump shaft and the rotor of the pump.

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JESSICA L. MYERS whose telephone number is (571)270-5059. The examiner can normally be reached on Monday through Friday, 8:30am to 5:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on 571-272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

14. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/  
Supervisory Patent Examiner, Art  
Unit 3746

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